

Chapter 1: Introduction

Dallas, Tarrant, and Denton Counties form the heart of north central Texas, contain a variety of natural resources, and have a continual and expanding population. The three counties cover about 2700 square miles (approximately 1.7 million acres) with gentle topography that ranges from an elevation of 382 to 960 feet above mean sea level (Hightower, 2002; Maxwell, 2002; Odum, 2002). Three different native vegetation types occur in this region of Texas, of which few undisturbed patches remain due to urbanization (Diggs et al., 1999). Prior to human settlement, the Blackland Prairie covered most of Dallas County in the east, while the eastern Cross Timbers ran through the central portion of north central Texas, and the Grand Prairie occupied the western portion (Diggs et al., 1999).

The populace of this region began to escalate in the 1840's when the Republic of Texas authorized recruitment of settlers (Hightower, 2002; Maxwell, 2002; Odum, 2002). In 1860 approximately 11,000 people, primarily engaged in agriculture, resided in the area and the arrival of a railroad in the 1870's resulted in a surge of development (Hightower, 2002; Maxwell, 2002; Odum, 2002). Almost half of Denton County in 1880 was cultivated and the county was reported to be the United State's largest inland wheat market by the end of the century (Odum, 2002). Around this time, the cattle drives came to an end and more farmers moved into Tarrant County (Hightower, 2002). By 1900 the region's population had increased to 163,000 (U.S. Bureau of Census) and manufacturing began its expansion in Dallas County (Maxwell, 2002). Agriculture declined quickly after World War II and industry took over. Growth and development continued in the whole region and by 1950 the population had ballooned to one million (U.S. Bureau of Census). With the completion of Interstate Highway 35 in the 50's and the east and west forks in the 80's, commuting increased and areas outside the population centers rapidly became urbanized (Hightower, 2002; Maxwell, 2002; Odum, 2002). These trends of expansion have continued to the present day and the census for 2000 reported a population of 4 million (U.S. Bureau of Census), with a projected population of over 6 million in 2030 (NTCOG, 2004).

The U.S. Army Corps of Engineers (USACE) constructed Grapevine and Lewisville Lakes (see Figure 1-1) in the 1950's and continue to operate these reservoirs for flood damage reduction, water supply, recreation, and natural resource management. An Environmental Impact Statement was developed for Grapevine Lake in March 1977 and for Lewisville Lake in 1973, which addressed the environmental impacts of the operations and maintenance of the reservoirs. Engineering Regulation (ER) 1130-2-406 dated 13 December 1974, superseded by ER 1130-2-406 dated 31 October 1990, directed USACE to develop a shoreline management plan as part of the overall Lake Master Plan for all of its reservoirs. Lewisville Lake Lakeshore Management Plan was finalized in July 1976, and Grapevine Lake Lakeshore Management Plan was finalized in August 1976. To implement the shoreline management plans on a consistent basis USACE developed specific guidelines that would allow a certain amount of mowing and access paths on government property to allow adjacent landowners to have a buffer for fire protection, public safety, public access, and pest control. This Programmatic Environmental Assessment is only addressing the mowing, underbrushing and access path guidelines of the Shoreline Management Plan. These guidelines have been revised over time, but the current guidelines (Appendix A) allow for adjacent landowners to obtain one permit from USACE to mow a 50-foot buffer on Lewisville Lake and a 25-foot buffer on Grapevine Lake and/or to obtain an additional permit from USACE to maintain access paths to the lake. In addition, since mowing is difficult when the land is overgrown in brush, there are guidelines on underbrushing within the allowable mowing zones. ER 1130-2-406 is somewhat stringent with regard to allowable mowing and access paths. Specifically it states that no adjacent landowner shall be allowed to mow without a permit and that public land shall at no time have the appearance of private property. Additionally, at no time shall a permit compromise the integrity of the natural resources of the land. Due to increasing numbers of subdivisions and/or developments adjacent to public lands, and the varying degrees of encroachment onto government property at Lewisville and Grapevine Lakes, USACE has decided to take another look at its mowing, underbrushing, and access paths guidelines to determine whether new guidelines are needed to ensure that allowable mowing, underbrushing and access path activities are not causing significant damage to natural resources, and to ensure adjacent landowners are in compliance with our mission to properly manage the natural resources at Grapevine and Lewisville Lakes. This Programmatic Environmental Assessment examines the environmental effects associated with allowing a variety of mowing/underbrushing and habitat zone widths, and allowing a variety of pedestrian access path options, while at the same time maintaining the integrity of natural resources including fish and wildlife habitat, and water quality at both lakes.

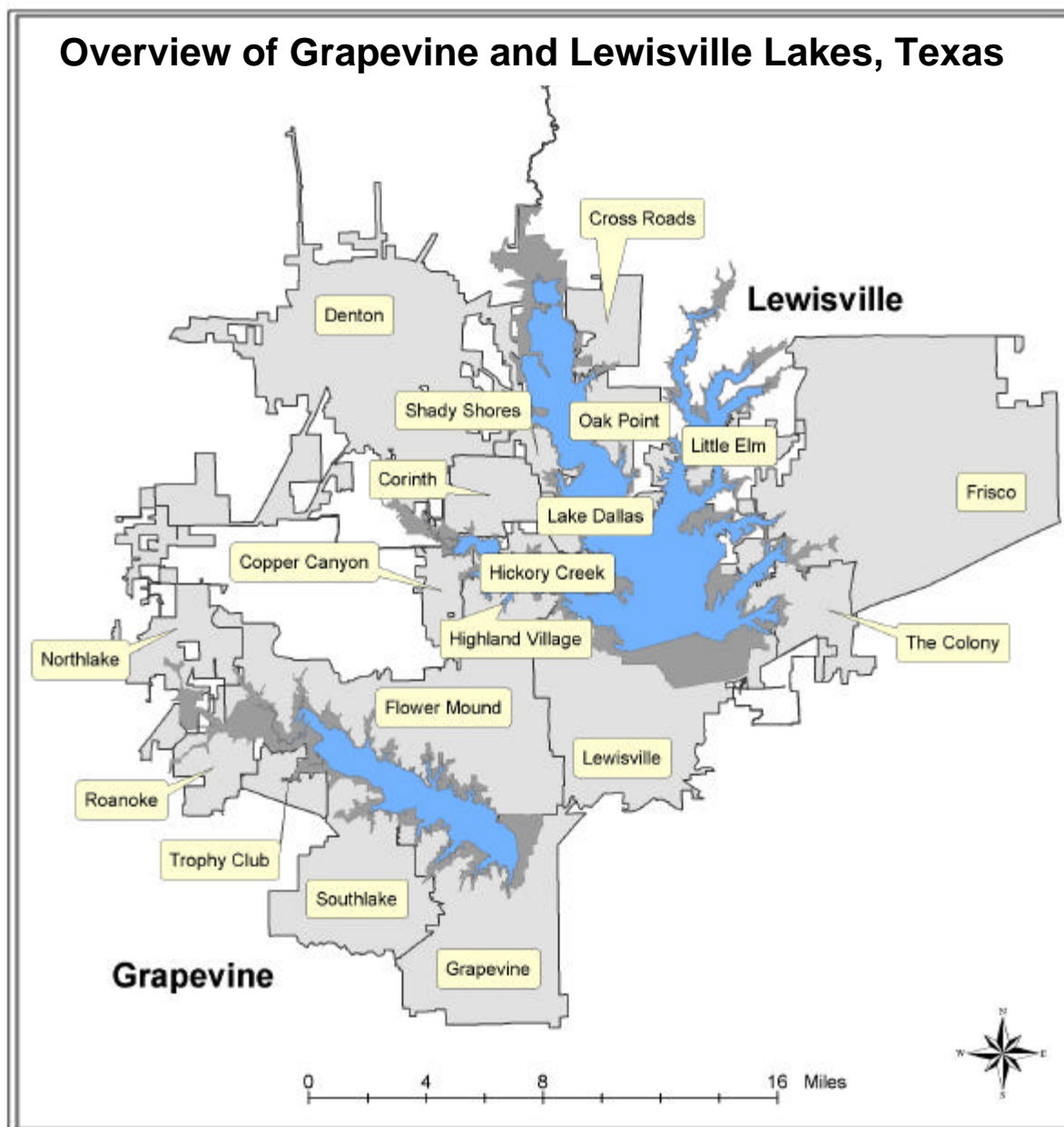


Figure 1-1. Overview of Grapevine and Lewisville Lake Region, north central Texas.

The underlying need being addressed by USACE at Lewisville and Grapevine Lakes, Texas, is to manage and conserve natural resources while providing quality public outdoor recreation experiences for present and future generations. Natural resource management, through the use of sound environmental stewardship, protection, compliance and restoration practice helps USACE promote environmental awareness and sustainability. USACE's management and conservation practices seek to provide for long-term public access to, and use of, natural resources in cooperation with other Federal, State and local agencies, as well as the private sector. Natural resources considered by USACE for management and conservation efforts include fish, wildlife, forests, wetlands, grasslands, soil, air and water, with the provision for public recreation opportunities. To properly manage these resources, USACE proposes to implement ecosystem-based vegetation management practices. Implementation of these practices must consider the environmental effects of allowing adjacent landowners to mow, clear underbrush, and create access paths on public lands.

The purpose of modifying mowing, underbrushing, and access paths guidelines for adjacent landowners on Federal lands encompassing Lewisville and Grapevine Lakes is to allow those landowners a reasonable measure of fire protection, public safety, and pedestrian access, while balancing these permitted private activities with the need to conserve and manage fish, wildlife, forests, wetlands, grasslands, soil, air and water resources.

There are multiple ways to approach allowable mowing and/or removal of underbrush by adjacent landowners on Federal lands. For example, mowing and underbrushing on Federal lands could be completely prohibited. While this approach would maximize managing for, or conservation of, certain resources (e.g. water resources), it would reduce pedestrian access to the lakes. Likewise, allowing unlimited mowing and underbrushing by adjacent landowners would increase pedestrian access, but it would be counter to the goal of managing and conserving natural resources.

The objective of this programmatic environmental assessment is to document the environmental consequences of an array of ecosystem vegetation management prescriptions and of mowing and underbrushing alternatives, such that USACE can make an informed decision on which prescriptions and mowing and underbrushing alternatives best meet the purposes of this action in meeting the underlying need.

Chapter 2: Proposed Action and Alternatives

Initial acquisition of Federal lands at Grapevine and Lewisville Lakes took place in the late 1940's and early 1950's. Land acquisition policy at that time resulted in fee simple acquisition of most lands up to elevation 572 feet at Grapevine Lake and 537 feet at Lewisville Lake. These elevations represent the probable maximum flood elevation of each lake. In a relatively few locations, mostly in the upper reaches of each lake, a flowage easement estate was acquired in lieu of fee simple acquisition. Additionally, in areas planned for intensive park development, some lands were acquired above the probable maximum flood elevation.

In the late 1950's and early 1960's land acquisition policy became much more conservative, and on lakes in existence at the time, such as Grapevine and Lewisville Lakes, Public Law 85-500 directed that considerable acreage be reconveyed, or sold back, to the original owners. These reconveyed lands were generally located between elevations 560 and 572 at Grapevine Lake, and 529 and 537 at Lewisville Lake. In total, 1849 acres at Grapevine Lake, and 3,679 acres at Lewisville Lake were reconveyed to former owners. However, in most areas designated for intensive park development, very little land was reconveyed. Furthermore, at Lewisville Lake, no lands were reconveyed in the entire portion of the lake extending upstream from the old Lake Dallas dam. The Federal land in this area was acquired almost entirely from the City of Dallas, who owned the land as part of Lake Dallas. Federal ownership in this area generally extends up to elevation 537 feet. Where lands were reconveyed, particularly in areas with steep or moderately steep shorelines, the width of Federal land from the boundary line to the conservation pool elevation was reduced considerably.

In the late 1980's, the conservation pool elevation of Lewisville Lake was permanently raised from 515 feet to 522 feet. This permanent increase in the conservation pool elevation was made possible by the reallocation of a portion of Lewisville Lake's flood storage capacity to the newly constructed Ray Roberts Lake. The seven-foot increase in the conservation pool (sometimes referred to as the normal pool) resulted in further reduction of the width of Federal land surrounding Lewisville Lake, most noticeably in those relatively steep shoreline areas where lands had been reconveyed. Shoreline areas that were reduced in width by the reconveyance of lands and the increase in the conservation pool to the extent that the width of the majority of Federal ownership is less than 100 horizontal feet shall be referred to as "narrow shorelines". These areas are identified in Appendix B.

Figure 2-1 helps define the terms used to establish a range of reasonable alternatives that were analyzed in this environmental assessment. The figure is bounded at the top by the *Federal property line*, which is well defined and fixed, is typically obvious when encountered at both Grapevine and Lewisville Lakes, and legally separates adjacent landowners from Federal lands. At the bottom of the figure is a representation of the *shoreline*, which follows a specific elevation as measured above mean sea level (msl). The shoreline is variable, based on drought or flood or lake pool maintenance operations. Under extreme drought conditions, Grapevine Lake's shoreline has dropped to 521 feet msl (2/26/79), while Lewisville Lake's shoreline dropped to 507 feet msl (10/15/00). Under extreme conditions, the shoreline can cross the Federal property line, going up to or slightly higher than the elevation of the dam's emergency spillway elevation (Grapevine Lake's emergency spillway is 560 feet msl; Lewisville Lake's emergency spillway is 532 feet msl).

Figure 2-1 also indicates the *conservation pool elevation*, the elevation at which USACE attempts to maintain the lakes under normal conditions. Grapevine Lake's conservation pool elevation is 535 feet msl; Lewisville Lake's conservation pool elevation is 522 feet msl. While this line is not intentionally demarked on the ground, it is fairly obvious at the lake since there is often a distinct erosion face at this elevation around the lake.

Figure 2-1 shows a line representing where *mowing and underbrushing limits* occur, and is established as a distance from the Federal property line. This line is not demarked on the ground, and there is not an easy way to visualize where the line is on the ground when visiting the lake without a tape measure. Under existing conditions (25 foot mowing/underbrushing zone at Grapevine Lake and 50 mowing/underbrushing zone at Lewisville Lake), approximately 1,782 acres fall within this zone.

The area between the current mowing/underbrushing zone and conservation pool, designated in this environmental assessment and Figure 2-1 as the *habitat zone*, contains approximately 24,413 acres. USACE has developed a set of ecosystem based vegetation management prescriptions that will be allowed in the